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Molecular tectonics: Dimensionality and geometry control of silver coordination networks based on pyrazolyl appended thiacalixarenes

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Abstract

© The Royal Society of Chemistry 2016.Combinations of six new coordinating tectons (3-8) tetrakis-pyrazolyl appended calix[4]arenes, blocked in 1,3-A conformation, based on 1 (tetrathiacalix[4]arene) and 2 (tetrathiatetramercaptocalix[4]arene) derivatives, with AgX salts (X = NO3-, BF4-, XF6- (X = P, As and Sb)) lead to nine new silver coordination networks. The flexible nature of tectons 3-8 (length of the spacer between the macrocycle and the pyrazolyl coordinating unit), their high number of potential coordinating sites and the loose coordination demand of Ag+ cation lead to the formation of a large variety of networks with different dimensionality: from 1D (5-AgSbF6, 5-AgBF4, 7-AgSbF6 and 8-AgNO3) to extended 2D (6-AgBF4 and 8-AgSbF6) and to a series of three isostructural porous diamond-like 3D architectures (6-AgXF6 (X = P, As and Sb)).

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